

January 31, 2013

Presentation format: 5 minute presentation followed by 5-10 minute discussion. Use ≤ 5 slides, you are encouraged to use the board.

Evaluation: This presentation gives you 5% of the final grade. You will be evaluated based on your presentation (3%) and contributions to the discussion (answering questions - 1% and asking questions – 1%). While the attendance of all presentations is not mandatory, you are strongly encouraged to seat and actively participate during the talks and discussions, as some of the questions at the midterm and final exams may be related to these topics.

February 4, 2013

1.	Renjie Hou	Determination of equilibrium crystal shape using Wulff's theorem. Consider a hypothetical 2D crystal having a simple square unit cell. Assume that there are deep cusps in the γ -plot in the (10) and (11) directions. Given that γ_{10} is 300ergs/cm and γ_{11} is 250ergs/cm, make a Wulff construction to find the equilibrium crystal shape (a little bit of geometry will be required). Calculate the energy of the final Equilibrium Crystal Shape (ECS).
2.	Nafiseh Ebrahimi	Qualitatively describe the energy distribution of electrons emitted from a surface which is bombarded by an electron beam with incident energy $E_0=5000\text{eV}$. Identify several surface characterization techniques that rely on particular features in this energy distribution.
3.	Taylor Martino	Backbonding: definition, examples, when it is important?

March 11, 2013

1.	Nazhen Liu	X-ray photoemission spectroscopy: compare XPS, UPS and inverse photoemission.
2.	Bahareh Farhadpour	Binding of ethane at a metal surface.
3.	Nastaran Yousefi	What determines reactivity of a metal?
4.	Jun Li	Three different growth modes of thin films: give examples of systems in each three category.
5.	Thomas Sutherland	Ostwald ripening: definition, examples.
6.	Ryan Guterman	Mechanism of silicon etching in HF.
7.	Maxwell Goldman	Porous solids formation.

April 1, 2013

1.	Shannon Hill	Determination of corrosion rate.
2.	Sara Ghiassian	Explain (with energy diagrams) the difference between scanning tunneling microscopy (STM) measurements for positively and negatively biased sample, give examples.
3.	Mohammadali Tabatabaei	Selection rules for FTIR and Raman spectroscopies applied to surfaces.
4.	Daniel Mizzi	Sputtering for depth profiling.
5.	Leena Alrehaily	Elastic Recoil Detection